REPORT

DATE: July 7, 2005

TO: Regional Comprehensive Plan Task Force

FROM: Jacob Lieb, Acting Lead Regional Planner, (213) 236-1921, lieb@scag.ca.gov

SUBJECT: Solid and Hazardous Waste Chapter

RECOMMENDED ACTIONS:

Recommend that the Energy and Environment Committee release the Preliminary Draft Solid and Hazardous Waste Chapter for public review. Approve the process described below for making refinements to the chapter.

SUMMARY:

On December 15, 2004, the Regional Comprehensive Plan (RCP) Task Force gave instructions to staff on the completion of a Draft Solid Waste Chapter. A subsequent report to the Energy and Environment Committee was made in January 2005. Staff has prepared a preliminary draft for the Task Force's consideration at this time. Further, staff is proposing additional steps to make refinements to the Chapter consistent with previous Task Force discussions.

BACKGROUND:

The Regional Comprehensive Plan incorporates all applicable, current policies of the Regional Council, and develops an action plan for implementation by outside entities. Over the last year, staff, under the direction of the RCP Task Force, has developed a preliminary draft of the Solid and Hazardous Waste Chapter. This chapter has also been reviewed by the Solid Waste Task Force, a standing advisory group to the EEC which is composed of both policy makers and experts and stakeholders in the field.

At this time, the chapter should not be considered final. Rather, it includes the two key sections developed during the first year of the planning process. Pending approval by the Task Force and the EEC, staff will release this preliminary draft to the public, and undertake further activities to refine and complete the Chapter.

As discussed with the Task Force at the April and May 2005 meetings, the current (2005-2006) fiscal year effort will focus on the crafting of performance outcomes for each chapter. These outcomes should have the following features:

- Consistent with Federal and State legal requirements, at a minimum (can be more rigorous, but not less)
- Fully incorporates plans prepared by responsible agencies
- Can be measured at intermediate stages
- Can be adapted to be used as significance thresholds in environmental analysis under the California Environmental Quality Act.

For the Solid and Hazardous Waste Chapter, this process, as proposed by staff, will be guided by the Solid Waste Task Force. The procedure for developing plan outcomes will include a review of all applicable State and regional plans, direct outreach to agencies with policy and regulatory authority, and dialogue to mediate various plan provisions.

Attachment: Preliminary Draft Solid and Hazardous Waste Chapter

This Draft Solid Waste Chapter, as presented, is preliminary, and has not been subject to formal approval of the SCAG Regional Council or any Committee. The action plan is based on the discussions of the RCP Task Force and is being made available at this time for information and for suggestions.

INTRODUCTION

This chapter presents policies regarding solid waste and hazardous waste adopted by SCAG's Regional Council, an action plan to meet the policy requirements and a listing of existing conditions.

The solid waste action plan is organized according to the implementing authority. As such, there is a section for recommendations for the federal government, the California government, SCAG and other regional agencies, and local government. The action plan is further organized by distinguishing actions that are critical to implementing SCAG's regional growth vision and those which are presented as advisable practices. While the actions included here are advisory, SCAG will refer to its recommended practices in administering Inter-Governmental Review as authorized by CEQA. The action plan includes items identified as mitigation in the Program Environmental Impact Report for the 2004 Regional Transportation Plan (RTP).

In addition to the solid waste action plan, the chapter contains data on

- solid waste and hazardous waste generation and disposal,
- disposed solid waste composition,
- solid waste diversion rates and recycling,
- solid waste landfill capacity, and
- non-disposal solid waste facilities, such as
    - solid waste transfer stations,
    - material recovery facilities,
    - waste-to-energy disposal facilities, and
    - conversion technology disposal facilities.

This chapter also forecasts solid waste disposal needs as far as projections are available. Performance indicators, if used, can measure how the region is progressing toward its policy goals and relate the region's progress on solid waste issues to the Regional Council's Growth Vision principles.

SCAG POLICIES REGARDING SOLID WASTE, INCLUDING HAZARDOUS WASTE

SCAG has established policies regarding solid waste, including hazardous waste. These policies can be used as a guide for jurisdictions when establishing their own waste management policies.

The guiding policy for this chapter is to "*Promote Sustainability for Future Generations.*" The Regional Council, through its 2004 Growth Vision, recognizes that management of solid waste and hazardous waste must be sustainable in order to efficiently manage natural resources and in order to protect the environment today and in the future. The overarching solid waste policy is to:

- *Develop strategies to accommodate growth that use resources efficiently, eliminate pollution, and significantly reduce waste generation, and that return waste stream materials to beneficial use.*(Policy Reference: 72)

SCAG Solid Waste Policies

SCAG has various policies to meet the overarching solid waste policy. These are listed below along with changes recommended by the Solid Waste Task Force.

- ~~*Waste reduction goals and programs should be included in each of the county plans (Policy Reference: 135)*~~ [recommended delete since this is legally required of county and local governments]
- *Encourage local jurisdictions to continue to adopt programs to comply with state solid waste diversion rate mandates and, where possible, shall encourage ~~further recycling~~ all opportunities to exceed these rates.* (Policy Reference 187)
- ~~*Work with regulatory agencies to integrate requirements into local policies to the extent possible, and clarify the roles and responsibilities of regulatory agencies vis a vis local agencies, and thereby improve local government's ability to first understand its options, choose from them and then act accordingly* (Policy Reference: 107)~~
- *The California Integrated Waste Management Board should work with jurisdictions required to implement solid waste diversion mandates that are enacted by the legislature with an emphasis on programmatic, rather than mathematical compliance.* (Policy Reference: 186[modified])
- *Encourage the California Integrated Waste Management Board and the Legislature to pursue policy measures that will accelerate the commercialization and permitting of beneficial solid waste conversion technologies.* (Proposed new policy)
- *Minimize future impacts related to management of solid waste ~~through cooperation, information sharing, and program development during the update of the Integrated Solid Waste Management chapter of SCAG's Regional Comprehensive Plan and Guide and through SCAG's Energy and Environment Committee. SCAG shall consult with the California Integrated Waste Management Board during this process.~~* (Policy Reference: 188 [modified])

Hazardous Waste Policies

SCAG has adopted a resolution and several policies on hazardous waste. The Regional Council's goal in developing these policies is that hazardous waste is minimized and that jurisdictions accommodate the hazardous waste that is produced within their boundaries.

- ~~*Regional cooperation can help ensure that counties coordinate their approaches to hazardous waste management facility siting criteria to avoid one county's policies being significantly more restrictive than another county's, thereby leading to inequitable facility siting decisions. Through regional cooperation, general areas for hazardous waste management facility development that meet regional needs can be identified.* (Policy Reference: 134) Recommend deletion~~
- *Support only the use of the best available technology including monitoring, air, and water impacts for locating any nuclear waste facility.* (Policy Reference: 148)

- *Every county should accept responsibility for the management of hazardous wastes in the region in an amount proportional to the hazardous wastes generated within the county.* (Policy Reference: 133)
- *Jurisdictions should work together to develop a common siting criteria for hazardous waste facilities.* [proposed new policy]
- *Encourage federal, state and local efforts to educate businesses on the use of less dangerous alternatives than hazardous materials.* (Policy Reference: 170)
- *Encourage the U.S. Department of Transportation and the California Highway Patrol to continue to enforce existing regulations governing goods movement and hazardous waste transportation.* (Policy Reference 169)

Action Plan

In order to make these policies useful, there needs to be an action plan that will allow jurisdictions to implement the policies. Through the Regional Comprehensive Plan Task Force and SCAG policy committees, the Regional Council has devised an action plan that presents a menu of options for jurisdictions regarding solid waste and hazardous waste. All of these items in the action plan relate to one or more of the solid waste policies as well as the mitigation measures in the 2004 Regional Transportation Plan (RTP) Program Environmental Impact Report (PEIR). The mitigation measures are part of the Action Plan.

RECOMMENDED ACTIONS

Source Reduction and Waste Prevention

1. SCAG strongly encourages all levels of government to advocate for source reduction and waste prevention. Source reduction or waste prevention includes actions to reduce waste at the source. Products with less packaging, eliminating unwanted mail before it is sent, and reusing or recycling items instead of disposing of them are all ways to prevent waste. Actions related to source reduction or waste prevention include advocating for (Policy Reference 135):

- Reducing the use of excess material used in packaging products;
- increasing the useful life of products through durability and reparability;
- decreasing of the toxicity of products;
- facilitating material or product reuse;
- the reduction, or more efficient consumer use, of materials; and
- increasing production efficiency to produce less production waste;
- continued support of government source reduction programs;
- the continuing advocation of consumer-based "recycling" or "eco-shopping" strategies
- supporting state programs that offer incentives to those who use recycled content; thus encouraging growth in the recycled contents market;
- eliminating unnecessary duplication and/or restrictive regulations that hinder recycling, reuse, composting and conversion of solid waste;
- continuing to support efforts at all levels to stimulate the growth of recycling markets that controls the state mandates and/or demands percentage recycling;

- continuing to advocate for the development of incentives to increase the use of recycled contents materials;
- encouraging market demand for recycled content;
- advocating and supporting the education of businesses and industries for source reduction efforts and to the benefits of using post recycled content;
- advocating and supporting the simplification and timeliness of required reporting;
- encouraging the continued development of a statewide waste prevention public awareness campaign that reduces unnecessary overlap and expenditures at the local level. (Policy Reference: 134, 135, 170, 188)

Waste Diversion

Diverting waste from landfills through conversion technologies and recycling will reduce a region's reliance on landfills and will preserve the environment. Actions related to waste diversion and recycling include:

General

- Continue to support the ongoing statewide effort to quantify the "cradle to grave" full life costs of local government waste diversion programs.
- Advocate the development of subregional or multi-jurisdictional efforts to address solid waste.

Recycling

- Encourage international, federal, state, and local procurement policies that favor recycled products;
- Continue to advocate CIWMB's taking a realistic look at market potential for recycled materials.
- Advocate and support CIWMB developing policies that will develop and stimulate local, national, and international markets for recycled commodities.
- Advocate CIWMB providing a greater role to major recycling market industry groups (paper, plastics, metals, etc.) in the drafting of marketing development policy.
- Encourage consideration of rail accessibility to solid waste facilities and markets.
- Reduction requirements should be based only on the amount of residual solid waste ultimately disposed in landfills.
- Advocate and support state and local efforts to explore opportunities for voluntary actions to exceed the 50% waste diversion target.
- Encourage legislative approaches to help market recyclables through cost-effective financial support.
- Support and encourage the development of conversion technologies.

Conversion Technologies

Conversion technologies convert post-recycled residuals from material recovery facilities, currently destined for disposal, into high-value products such as energy, alternative fuels, and other industrial products. These processes divert wastes from landfills and produce energy and other products that can be used in place of consuming additional natural resources. Actions related to conversion technologies include:

- Advocate changes in state law, which provide (a) diversion credit for beneficial use of post-recycled solid waste residuals managed at conversion technology facilities, and (b) financial support and/or tax incentives for the development of pilot or demonstration solid waste conversion technologies.
- Support federal and state incentives for research and demonstration projects for solid waste conversion technologies.
- Support the siting of pilot and demonstration solid waste conversion technologies, individually or in conjunction with other technologies, giving equal consideration to environmental, public opinion, and cost factors.
- Support state legislative, CIWMB and Air Resources Board administrative actions to streamline the permitting process for solid waste conversion technologies.
- Advocate that CIWMB actively promote solid waste conversion technologies, and provides information concerning the costs and benefits of these technologies to local governments.
- Advocate county and local programs to educate the public on the life-cycle costs and benefits of solid waste conversion technologies.
- Advocate changes in State law to separate and remove conversion technologies from the definition of "transformation," and provide the diversion credit to non-burn conversion technologies.
- Consider siting solid waste conversion technologies, individually or in conjunction with materiel recovery facilities, giving consideration to environmental, public opinion, and cost factors.

Composting

Composting is the bacterial decomposition of organic materials. Composting can reduce the volume of organic materials that would otherwise be sent to landfills by about 50%. Actions related to composting include:

- Support state legislative, CIWMB, Air Resources Board and the California Water Resources Board administrative actions to streamline the permitting process for solid waste composting technologies and to address increasing regulatory challenges relative to siting, air quality, and odor issues.
- Advocate CIWMB to actively promote solid waste composting technologies and provide information concerning the costs and benefits of these technologies to local governments.
- Advocate county and local programs to educate the public on the costs and benefits of solid waste composting technologies.
- Consider siting solid waste composting technologies, individually or in conjunction with other technologies, giving consideration to environmental, public opinion, and cost factors.

Landfills

Landfills have been the major component in the solid waste management system for some time. More and more often, today, however, landfills are reaching their capacity. Public and private operators of landfills are finding it difficult to site new landfills or expand existing ones because of public opposition. Actions related to landfills include:

- Advocate the continuing review and update of the Siting Elements of Countywide Integrated Waste Management Plans and facilitate the ongoing public dialog on the role and need for landfills.
- Advocate CIWMB's taking a major role in looking at alternatives to continued waste disposal in landfills, including the development of strategies to extend the life of existing landfills.
- Support the streamlining of the CEQA process regarding landfill siting regulations and procedures.
- Encourage and support existing landfills and the siting of new landfills necessary to meet residual disposal needs.
- Support County Efforts to site landfills and to promote public dialogue related to the role and need for landfills.
- Monitor proposals to transport solid waste out-of-state and consider economic impacts to Southern California.

Actions from the Southern California Hazardous Waste Management Plan, July 1989

A key component of hazardous waste management is identifying disposal facilities. The actions put forth in the Southern California Hazardous Waste Management Plan encourage jurisdictions to accommodate the hazardous waste produced within their jurisdictions and not to place the disposal burden on other jurisdictions. Actions for hazardous waste include:

- Every county and city in the region should accept responsibility for the management of hazardous wastes in an amount proportionate to the hazardous wastes generated in the county and city.
- Each county should meet its obligation in managing hazardous wastes.
- Facilitate hazardous waste reduction by:
  - Supporting strategies that give priority to waste reduction;
  - Assisting in information sharing, intergovernmental coordination, and public advocacy;
  - Supporting a standard definition and reporting format for waste reduction in the region that simplifies reporting and improves timeliness;
  - Monitoring county waste reduction efforts; and
  - Facilitating intergovernmental cooperation in waste reduction among local government, the California Department of Toxic Substances Control, special purpose agencies, and military institutions.

Current Conditions

The current waste generation, waste disposal and diversion, and landfill capacity conditions for the SCAG region are presented in this section. Information about disposal options beyond landfills is also presented. Hazardous waste, including business and household hazardous waste, universal waste, and electronic waste are also discussed in this chapter on solid waste.

Waste Generation and Disposal

In 2003, the SCAG region accounted for 21.2 million tons of disposed waste, or approximately 57% of the statewide total of 35.8 million tons. With a statewide diversion

rate of 47%, approximately 68 million tons of total waste was generated in California, and 32 million tons were diverted or recycled.

The amount of landfill waste generated in the SCAG region dropped considerably after Assembly Bill 939 (The California Integrated Waste Act of 1989) was adopted. The Act requires local governments to reduce their waste that is disposed in landfills or other means by 25% by 1995 and 50% by 2000. Enacted at the beginning of a recession, the act was initially successful. However, since 1995, the amount of landfill waste originating in the SCAG region generally has been rising.

The increase is not due to a relaxation in the law. The average waste disposed in a landfill or transformation facility per day per person in the state decreased 27%, from 3.12 pounds per day in 1990 to 2.46 pounds per day in 2003.[1] Annual non-residential disposed waste decreased from 25.4 million tons in 1990 to 23.9 million tons in 2003, a six percent decrease.[2] During the same period, the regional population increased by 5.5 million people and business taxable sales increased 12%. However, the effect of AB 939 is clearly seen when comparing disposed waste from each county between 1990 and 2003, as seen in the below table.

Post Recycled Solid Waste Disposed in the SCAG Region, 1990-2003

Year	Waste (In Tons) by County of Origin						
	Imperial	Los Angeles	Orange	Riverside*	San Bernardino*	Ventura	SCAG Region
1990	**475,935**	**12,373,015**	**4,439,467**	**2,029,795**	**1,613,475**	**1,095,159**	**22,026,846**
1995	152,945	12,027,872	2,969,155	1,332,771	1,634,484	793,562	18,910,789
1996	142,537	11,588,049	2,970,679	1,297,423	1,662,884	773,010	18,434,582
1997	166,635	11,710,081	3,335,262	1,352,166	1,614,192	783,125	18,961,461
1998	160,848	12,344,753	3,620,851	1,471,595	1,691,378	856,189	20,145,614
1999	180,713	12,251,945	3,610,095	1,559,685	1,688,062	863,739	20,154,239
2000	181,628	12,748,153	3,834,634	1,671,600	1,768,527	892,560	21,097,102
2001	182,587	11,577,206	3,909,528	1,763,750	1,895,484	901,154	20,229,709
2002	198,454	11,581,424	3,721,655	1,844,534	1,919,841	922,480	20,188,388
2003	**229,548**	**12,028,027**	**3,900,425**	**2,032,982**	**2,099,691**	**971,480**	**21,262,153**

*includes solid waste exported out of state, but originated in the SCAG Region.

Source: California Integrated Waste Management Board. (25 May 2004). Multi-year Countywide Origin Summary. Retrieved February 9, 2005, from http://www.ciwmb.ca.gov/LGCentral/DRS/Reports/orgin/WFOrginAnnual.asp

Californians have reduced waste out of economics and out of necessity. Landfills across the state are reaching capacity. The expansion of landfills or the development of new landfills in urban areas is expensive and is often met with local opposition. Siting landfills in remote areas increases disposal costs. These remote landfills can also meet opposition as they may be located in fragile environments.

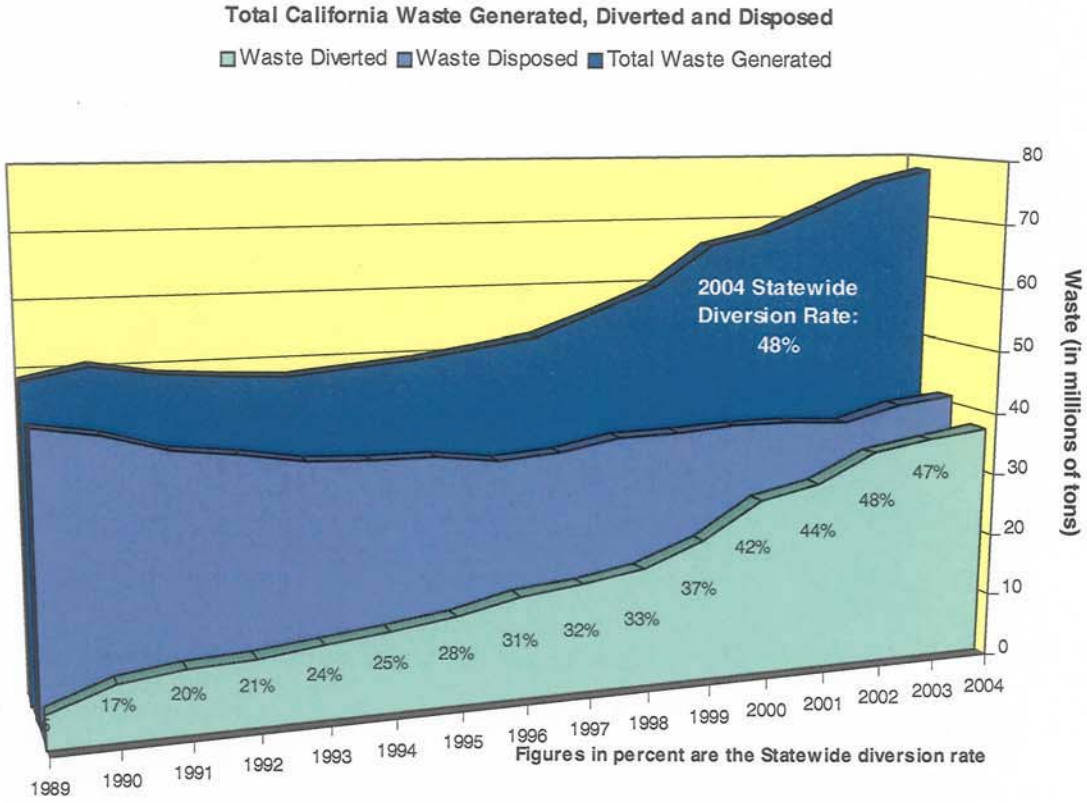
[1] California Integrated Waste Management Board. (14 April 2004). Residential Disposal Rates. Retrieved August 12, 2004 from http://www.ciwmb.ca.gov/LGCentral/Rates/Disposal/Resident.htm

[2] California Integrated Waste Management Board. (14 April 2004). Nonresidential Disposal Rates. Retrieved August 12, 2004 from http://www.ciwmb.ca.gov/LGCentral/Rates/Disposal/NonResid.htm

Jurisdictions in the SCAG region have varying success rates in meeting AB939's goals. Some are in compliance and others are having difficulties complying with the legislation. Action will be necessary for those jurisdictions in compliance to maintain compliance with an increasing population. The SCAG region is anticipating six million additional residents by 2030. The waste disposal requirements, combined with the requirements of the existing population in an increasing urbanized environment, will be significant. Even greater actions will be necessary for those jurisdictions not in compliance to eventually meet compliance.

Waste Diversion

In 1990, only 10% of the waste generated statewide was diverted from landfills. In 2002, the diversion rate was 48% and estimates for 2003 report that 47% of wastes were diverted from landfills. In 2004, diversion again was 48%.



Source: http://www.ciwmb.ca.gov/LGCentral/Rates/Graphs/TotalWaste.htm accessed June 9, 2005

Jurisdictions in the SCAG region are having varying success in meeting these goals as they attempt to swiftly implement programs and policies to divert waste away from landfills. 62 jurisdictions in the region met or exceeded the 50% diversion mandate in 2002, while 106 jurisdictions did not meet this threshold as shown in the below table.

Jurisdictions in the SCAG Region in Compliance with AB 939, for 2003			
County	**Percentage of Waste Diverted from Landfills**		
	Less than 50%	**50% or Greater**	**No Data**
Imperial	4	2	0
Los Angeles	45	25	6
Orange	18	15	0
Riverside	15	10	0
San Bernardino	19	4	2
Ventura	5	6	0
SCAG Region	**106**	**62**	**8**
Source: CIWMB. (2004). Countywide, regionwide, and statewide jurisdiction diversion progress report. Retrieved June 2, 2005, from http://www.ciwmb.ca.gov/LGTools/mars/jurdrsta.asp			

Solid Waste Disposal Composition

Organic matter and paper comprise more than 55% of the waste in California in 2003, a decrease from 65% in 1999. Construction and demolition materials increased from 11.6% of the waste in 1999 (4.3 million tons), to 21% in 2003 (8.7 million tons). All other categories of waste individually account for less than 10% of California's waste stream.

California Overall Waste Stream Composition Data (1999, 2003)		
Type of Waste	**Percentage**	
	1999*	2003**
Organic, Other than Paper	35.1%	30.2%
Paper	30.2%	21.0%
Construction/demolition	11.6%	21.7%
Plastics	8.9%	9.5%
Metal	6.1%	7.7%
Special waste (includes ash, sewage, industrial sludge, etc)	3.1%	5.1%
Glass	2.8%	2.3%
Mixed residue	1.8%	1.1%
Household hazardous waste	0.3%	0.2%
Total	**100.0%**	**100.0%**
*Source: CIWMB: 1999 California Statewide Waste Disposal Characterization Study. Retrieved August 13, 2004, from http://www.ciwmb.ca.gov/WasteChar/Study1999/OverTabl.htm **Source: CIWMB. 1999 California Statewide Waste Characterization Study. Retrieved June 9, 2005, from http://www.ciwmb.ca.gov/Publications/default.asp?pubid=1097		

Regional Landfill Capacity

Waste that is not diverted ends up in landfills. Landfills located in or near urban areas are rapidly approaching capacity. Urban landfill expansion and urban landfill creation is unpopular and often meets vociferous opposition.

Because of this opposition, the waste industry has sought new locations to deposit waste in remote parts of the SCAG region and in other states. One location in Riverside

County, the Eagle Mountain Landfill, would have a capacity of 560 million cubic yards if permitted. An even larger landfill in the permitting process is in Imperial County. The Mesquite Regional Landfill would have a capacity of 970 million cubic yards. A third option would be to transport the waste by rail to a landfill in Utah. Fees associated with waste disposal could increase because of the increased cost to transport the waste to the landfill.

Permitted Landfill Daily Throughput in the SCAG Region	
County	**Daily Throughput (in tons)**
Imperial	2,114
Los Angeles	53,021
Orange	20,500
Riverside	19,452
San Bernardino	14,653
Ventura	4,500
SCAG Region	**114,240**
Source: CIWMB. (2003). Solid waste information system. Retrieved May 19, 2003, from http://www.ciwmb.ca.gov/swis/Search.asp	

The remaining capacity of 529.6 million cubic yards would last the region approximately 26 years if the region held constant to its 2002 waste disposal of 20.3 million tons. Permitting and opening planned landfills in Imperial County, north Los Angeles County and Riverside County would nearly quadruple the available capacity at the region's landfills to two billion cubic yards. SCAG forecasts that the region will add another 6 million people by 2030, generating additional waste.

Remaining Capacity (In Cubic Yards) at Landfills in the SCAG Region		
County	**Remaining Capacity (Cubic Yards)**	**Planned Additional Capacity (Cubic Yards)**
Imperial	8,460,468	970,000,000
Los Angeles	187,305,891	8,206,400
Orange	233,291,391	0
Riverside	48,033,915	559,693,680
San Bernardino	22,195,572	0
Ventura	30,270,129	0
SCAG Region	529,557,376	1,537,900,080
Source: California Integrated Waste Management Board. (2003). Solid waste information system. Retrieved June 6, 2005, from http://www.ciwmb.ca.gov/swis/Search.asp		

Non-Disposal Solid Waste Facilities

There are non-disposal solid waste facilities in addition to landfills. Transfer stations, rail loading facilities, material recovery facilities, waste-to-energy facilities, and conversion technology facilities all handle waste. Some of these facilities are temporary holding centers until the waste is transported to landfills. Others look to recycle the waste or convert the waste-to-energy or other usable products, diverting the waste from landfills.

Transfer Stations and Material Recovery Facilities

Transfer stations and material recovery facilities are interim steps in the process of hauling waste to landfills. Waste haulers bring the waste to these facilities and then the wastes are taken to final disposal sites. Some of these operations contain material recovery facilities that extract recyclable items from the waste before sending the remaining waste to landfills. There are over 70 active, permitted transfer/processing facilities in the SCAG region.

Rail Loading Facilities for Waste Transfer by Rail

The large population and dense development in southern California leave few acceptable options for waste disposal near where the population is centered and the waste is generated. Both planned landfills in Riverside County and Imperial County are designed to accept waste-by-rail. In addition, other waste-by-rail facilities are located outside of the region, in places as far away as Utah.

Waste-to-Energy Facilities

Although considered by the State of California to be "disposal facilities," waste-to-energy facilities take wastes that would otherwise be discarded into landfills and use them in a productive way to create energy. These facilities reduce the total amount of waste that is disposed in landfills and create products allowing for the conservation of other resources. Waste-to-energy facilities include:

- Biomass: Biomass energy is created when agricultural and forest residue, and/or organic waste is used to produce energy.
- Anaerobic Digestion: Anaerobic digestion is a biological process that produces a gas from organic wastes such as livestock manure, food processing waste, etc.
- Landfill Gas: Landfill gas power plants collect the gasses emitted by landfills and turn them into productive uses.
- Municipal Solid Waste: Municipal solid waste can be directly combusted in waste-to-energy facilities as a fuel with minimal processing, known as mass burn; it can undergo moderate to extensive processing before being directly combusted as refuse-derived fuel."[3]
- Waste Tire: Waste tire-to-energy facilities produce gypsum for agricultural use to make wallboard, fly ash (33% zinc) for animal feed and use as pigment, and bottom ash (70% iron oxide) to make cement, foundry, and road base.[4]

The California Integrated Waste Management Board provides Internet links to vendors and contractors of hydrolysis, gasification, anaerobic digestion, and other technologies with Internet web pages. Some of these vendors are located in California, with the rest in other states and countries. The conversion technology vendor links are available at http://www.ciwmb.ca.gov/Organics/Conversion/Vendors/default.htm

[3] California Energy Commission. (24 June 2002). Municipal Solid Waste Power Plants. Accessed November 16, 2004, from http://www.energy.ca.gov/development/biomass/msw.html.

[4] California Energy Commission. (24 June 2002). Waste Tire to Energy. Accessed November 16, 2004, from http://www.energy.ca.gov/development/biomass/waste_tire.html.

Other Waste-to-Energy technologies such as distillation, gasification, hydrolysis, and pyrolysis convert post material recovery facilities for which there is no recycling market demand into high-value products such as energy, alternative fuels, and other industrial products. These processes divert wastes from landfills and produce energy and other products that can be used in place of consuming additional natural resources.

Often called conversion technologies, there is an effort in the California legislature to change the existing definition of conversion technology to include these technologies and provide diversion credits.

In the SCAG region, there are four waste-to-energy facilities that have been proposed.

Planned Waste-to-Energy Facilities in the SCAG Region		
Facility	**City**	**County**
Terameth Landfill Gas (Methanol Facility)	West Covina	Los Angeles
LA City Energy Recovery Project (Rsi)	Los Angeles	Los Angeles
International Environmental Solutions* (Pyrolysis Permits Pending)	Romoland	Riverside
Colmac Energy Project	Thermal	Riverside
Source: California Integrated Waste Management Board. (17 June 2004). Solid Waste Information System. Retrieved June 10, 2005, from http://www.ciwmb.ca.gov/SWIS/Search.asp *Source: site visit.		

Transformation Facilities

Transformation facilities incinerate municipal solid waste at board-permitted transformation facilities to produce heat or energy. "Transformation" does not include composting or biomass conversion. There are only two active permitted transformation facilities in the SCAG region.

Active Permitted Transformation Facilities in the SCAG Region		
Facility	**City**	**County**
Commerce Refuse-To-Energy Facility	Commerce	Los Angeles
Southeast Resource Recovery Facility	Long Beach	Los Angeles
Source: California Integrated Waste Management Board. (17 June 2004). Solid Waste Information System. Retrieved December 8, 2004, from http://www.ciwmb.ca.gov/SWIS/Search.asp		

Hazardous Waste Disposal

A wide range of businesses in southern California generate hazardous wastes, from printers and auto shops to oil refineries and electronics manufacturers. Households also produce hazardous wastes in order to protect the public's health and the environment. This section reports the amount of regional business and industry-generated hazardous waste and household universal hazardous waste. Universal waste refers to "fluorescent lamps, cathode ray tubes, instruments that contain mercury, batteries, and others."[5]

[5] California Integrated Waste Management Board. (27 Sept. 2004). Universal Waste. Retrieved December 7, 2004, from http://www.ciwmb.ca.gov/WPIE/HazSub/UniWaste.htm.

Business and Industry-Generated Hazardous Waste

In 2003, the most recent data year available, businesses and industries in the SCAG region properly disposed of 1.3 million tons of hazardous wastes at appropriate facilities. Los Angeles County disposed of 75% of the hazardous waste.

Hazardous Waste Disposed at specialized facilities 2003		
County	**Hazardous Waste (In Tons)**	**Regional Percentage**
Imperial	72,956	5.60%
Los Angeles	971,253	74.95%
Orange	79,021	6.10%
Riverside	37,689	2.91%
San Bernardino	110,837	8.55%
Ventura	24,179	1.87%
SCAG Region	**1,295,935**	**100%***

Source: California Department of Toxic Substances Control. Hazardous Waste Tracking System. Accessed June 7, 2005. http://hwts.dtsc.ca.gov/report_search.cfm?id=1
*Errors due to rounding of decimal

The five most prevalent types of hazardous waste disposed in the region account for 75% of all hazardous waste disposed in the region. Waste oil and mixed oil are the most disposed hazardous waste, followed by contaminated soils from site clean up, and other inorganic solid waste. The top five hazardous wastes disposed in the region are displayed in the following table.

Top 5 Hazardous Wastes Disposed in the SCAG Region, 2003		
Waste Code Name	**Waste Code**	**Tons Disposed**
Waste oil and mixed oil	221	341,066
Contaminated soils from site clean up	611	248,842
Other inorganic solid waste	181	199,988
Other organic solids	352	99,329
Asbestos-containing waste	151	78,020

Source: California Department of Toxic Substances Control. Hazardous Waste Tracking System. Accessed June 7, 2005. http://hwts.dtsc.ca.gov/report_search.cfm?id=1

Household Hazardous Waste and Universal Waste

Household hazardous waste data is limited for the SCAG region. Data for household hazardous waste are only available for Los Angeles and Orange Counties. The data report the number of fluorescent lamps, batteries, and thermostats (Termed "universal waste") collected by these two counties during Fiscal Year 2000-2001. The Department of Toxic Substances Control has enacted a Universal Waste Rule governing the disposal of these types of waste.

Los Angeles County Household Universal Hazardous Waste Collected, Fiscal Year 2000-2001			
Hazardous Waste	**Amount Collected**	**Handling Capacity**	**Total Handling Cost**
Fluorescent Lamps	2,584 lamps	Contracted	$2,600
Batteries	41,585 lb	Contracted	$51,000
Thermostats	450 lb commingled items	Contracted	$80
Total			$53,680
Source: California Integrated Waste Management Board. (2002, August). Household Universal Waste Generation in California.			

Orange County Household Universal Hazardous Waste Collected, Fiscal Year 2000-2001			
Hazardous Waste	**Amount Collected**	**Handling Capacity**	**Total Handling Cost**
Fluorescent Lamps	1,200 lamps	42,000 lamps	$4,900
Batteries	6,800 lb	125,000 lb	$8,000
Thermostats	500 thermostats	60,000 thermostats	$1,900
Total			$14,800
Source: California Integrated Waste Management Board. (2002, August). Household Universal Waste Generation in California.			

The handling costs for these hazardous wastes are low. The 2000-2001 fiscal year was the first year of the program to collect and properly dispose of these household hazardous wastes. The amount of wastes collected by this program is expected to increase dramatically by 2006. The costs of the program are estimated at $20.7 million for Los Angeles County, $3.7 million for Orange County, and $262,000 for Imperial County. The other three counties in the SCAG region have not provided data for analysis.

Electronic Waste

The Information Age has made computers and other electronic equipment commonplace in most businesses and many homes. As technological advancements continue at a rapid pace, faster, smaller, and more affordable units quickly replace older electronic equipment. Consumers often desire to dispose of the "obsolete" technology and replace it with the latest equipment. Electronic waste, or "e-waste," is growing as part of the waste stream. Computers, televisions, VCRs, stereos, copiers, and fax machines are common electronic products included in e-waste. Many of these products can be reused, refurbished, or recycled. Residents and businesses need a place to properly dispose of the unwanted equipment. Jurisdictions and electronics companies have begun to develop programs to recycle these items and to dispose of them properly.

Proper management is key because some components are hazardous materials and need special handling. For instance, computer monitors and televisions have cathode ray tubes that include lead. Lead cannot be disposed of in standard landfills.

California enacted the Electronic Waste Recycling Act of 2003 to establish a funding system for the collection and recycling of certain electronic wastes. Key elements of the Electronic Waste Recycling Act of 2003 include:

- Reduction in hazardous substances used in certain electronic products sold in California.
- Collection of an electronic waste recycling fee at the point of sale of certain products.

- Distribution of recovery and recycling payments to qualified entities covering the cost of electronic waste collection and recycling.
- Directive to establish environmentally preferred purchasing criteria for state agency purchases of certain electronic equipment.[6]

Some jurisdictions and electronics stores/manufacturers host hazardous waste drop off days to collect e-waste. Some companies will come to homes and businesses to collect the unwanted equipment and then reclaim and sell and recyclable material before properly disposing of the item. There are many options available to businesses and residents to properly dispose of unwanted computer and other electronic equipment.

Future waste system options

Future waste system options will rely on a variety of disposal, diversion, and recycling options to accommodate expected waste.

Disposal

The Eagle Mountain Landfill and the Mesquite Regional Landfill will be the major available landfills to service the region in the future. Because these landfills are so far from the population that they service, transportation costs will increase.

Conversion Technology Facilities

Conversion technologies offer ways to reduce wastes and produce useful products. These types of processes will need to be explored and developed in an effort to keep up with the wastes that will be generated by a growing population.

Recycling

Recycling incentives and mandates will likely increase as waste transportation and disposal costs increase. New automobiles contain parts that are more easily recyclable.

Measurement/Indicators

Reviewing the number of jurisdictions that have met the state-required 50% waste reduction is a good indicator of how the region is doing regarding limiting its solid waste. 115 out of 190 reporting jurisdictions in the SCAG region recycle less than 50% of their wastes. More than half of the reporting jurisdictions in the region are not reaching the 50% threshold, a threshold that was stipulated for the year 2000. While the region can be encouraged by the 75 jurisdictions that have met or exceeded the state-mandated threshold, more will need to be done by local jurisdictions to reduce or recycle the waste generated within the region. The alternative could be greater state mandates/regulations.

The amount of waste disposed in landfills that was generated in the SCAG region has decreased from 1990 to 2002 due to the required increased recycling efforts of AB 939. However, as the population has continued to rise, wastes disposed in landfills have crept higher toward the 1990 amount. Some wastes are being diverted from landfills but waste

[6] California Integrated Waste Management Board. (6 Dec. 2004). Electronic Waste Recycling Act of 2003 (SB 20). Retrieved December 7, 2004, from http://www.ciwmb.ca.gov/Electronics/Act2003/.

still is being generated at a large amount per person per day. Continued population growth could lead to continued growth in wastes that could overwhelm existing landfills.

Measurement/Indicators

- Per capita solid waste generation
  Is per capita solid waste generation decreasing? Continued reduction in solid waste generation/capita would provide a quantitative indicator of progress in reducing solid waste.
  - Per capita hazardous waste generation
    Is per capita hazardous waste generation decreasing? Continued reduction in hazardous waste generation/capita would provide a quantitative indicator of progress in reducing hazardous waste.
- Per capita solid waste disposal
  Is per capita solid waste disposal decreasing? Along with the above generation indicator, this indicator is quantifiable and can indicate the amount of recycling/diversion that is occurring.
  - Per capita hazardous waste disposal
    Is per capita hazardous waste disposal decreasing?
- Diversion rate
  Are the number of cities that have met the 50% diversion rate threshold increasing? For failing cities, is there a process to determine applicable solutions?

Analysis/Responsiveness to Growth Vision Principles

SCAG's Growth Vision provides four principles: mobility, livability, prosperity, and sustainability, on which to view future actions and development. The actions in each of the chapters of the Regional Comprehensive Plan help to implement the principles.

Mobility

- Coordinating land use and transportation would ensure that solid waste handlers could move solid and hazardous waste efficiently and safely to disposal sites.

Livability

- Fostering livability in all communities would require proper siting of solid waste facilities, including hazardous waste facilities.

Prosperity

- A regional solid waste policy would address environmental justice concerns.

Sustainability

- Preserving rural, agricultural, and environmentally sensitive areas would require a regional solid waste and hazardous waste disposal siting policy.
- Developing strategies to accommodate growth that use resources more efficiently would lead to reducing and recycling wastes.
- Utilizing "green" development techniques would lead to less waste from construction.

References

California Department of Toxic Substances Control. Hazardous Waste Tracking System. Accessed September 21, 2004.

California Integrated Waste Management Board. (6 Dec. 2004). Electronic Waste Recycling Act of 2003 (SB 20). Retrieved December 7, 2004, from http://www.ciwmb.ca.gov/Electronics/Act2003/.

California Integrated Waste Management Board. (27 Oct. 2004). Multi-year Countywide Destination Summary. Retrieved December 9, 2004, from http://www.ciwmb.ca.gov/LGCentral/DRS/Reports/Destination/WFDestAnnual.asp.

California Integrated Waste Management Board. (27 Sept. 2004). Universal Waste. Retrieved December 7, 2004, from http://www.ciwmb.ca.gov/WPIE/HazSub/UniWaste.htm.

California Integrated Waste Management Board. (25 May 2004). Multi-year Countywide Origin Summary. Retrieved August 13, 2004, from http://www.ciwmb.ca.gov/LGCentral/DRS/Reports/Orgin/WFOrginAnnual.asp

California Integrated Waste Management Board. (14 April 2004). Residential Disposal Rates. Retrieved August 12, 2004 from http://www.ciwmb.ca.gov/LGCentral/Rates/Disposal/Resident.htm

California Integrated Waste Management Board. (14 April 2004). Nonresidential Disposal Rates. Retrieved August 12, 2004 from http://www.ciwmb.ca.gov/LGCentral/Rates/Disposal/NonResid.htm

California Integrated Waste Management Board. (5 Jan. 2004). 1999 California Statewide Waste Disposal Characterization Study. Retrieved August 13, 2004, from http://www.ciwmb.ca.gov/WasteChar/Study1999/OverTabl.htm

California Integrated Waste Management Board. (2004). Countywide, regionwide, and statewide jurisdiction diversion progress report. Retrieved August 13, 2004, from http://www.ciwmb.ca.gov/LGTools/mars/jurdrsta.asp

California Integrated Waste Management Board. (2003). Solid waste information system. Retrieved May 19, 2003, from http://www.ciwmb.ca.gov/swis/Search.asp

California Integrated Waste Management Board. (2002, August). Household Universal Waste Generation in California.

Southern California Association of Governments (SCAG). (March 1996). *Regional Comprehensive Plan and Guide.* Los Angeles: SCAG.

Southern California Association of Governments (SCAG). (April 1997). Solid Waste Task Force Report. Los Angeles: SCAG.

Southern California Hazardous Waste Management Authority (SCHWMA). (27 July 1989). Southern California Hazardous Waste Management Plan. Los Angeles: SCHWMA.